

IN THE CLAIMS

1-7. (Cancelled)

8. (Presently amended) A method in a signal processor for filtering samples in a digital signal, the method comprising ~~The method of claim 1, wherein generating the approximate filtered sample further includes:~~

generating an approximate filtered sample as a function of two samples of the digital signal wherein the two samples are a first fixed-point sample, A, and a second fixed-point sample, B, wherein generating the approximate filtered sample includes:

calculating  $(A+B+1)>>1$  wherein the “>>” represents a right-shift;

calculating  $E = ((A+B+1)>>1)<<S$  wherein the “<<” represents a left-shift;

calculating  $F = ((A+B+1)>>1)<<R$ ; ~~and~~

calculating the approximate filtered sample as  $E + F$ ;

wherein S and R are positive fixed-point number;

generating a correction as a function of the two samples; and

generating a filtered sample by modifying the approximate filtered sample with the correction.

9. (Previously amended) The method of claim 8, wherein generating the correction includes:

calculating  $Q = \sim(A \oplus B)$  wherein the “ $\sim$ ” represents a bit-wise complement;

masking Q with the number one;

calculating  $G = Q \ll (S-1)$ ;

calculating  $H = Q \ll (R-1)$ ; and

calculating the correction as  $G + H$ .

10. (Original) The method of claim 9, wherein generating the filtered sample includes:

calculating the filtered sample as the approximate filtered sample added with the correction; and

right-shifting the filtered sample by N-1 bits, wherein N is a positive fixed-point number.

11. (Previously amended) A method in a signal processor for filtering samples in a digital signal, the method comprising ~~The method of claim 1, wherein generating the approximate filtered sample further includes:~~

generating an approximate filtered sample as a function of two samples of the digital signal wherein the two samples are a first fixed-point sample, A, and a second fixed-point sample, B, wherein generating the approximate filtered sample includes:

calculating  $(A+B+1) \gg 1$  wherein the “ $\gg$ ” represents a right-shift;

calculating  $E = ((A+B+1) \gg 1) \gg (N-1-S)$ ;

calculating  $F = ((A+B+1) \gg 1) \gg (N-1-R)$ ; and

adding E with F;

wherein N, S and R are positive fixed-point numbers, and wherein

$$N \geq S > R_2$$

generating a correction as a function of the two samples; and

generating a filtered sample by modifying the approximate filtered sample with the correction.

12. (Previously amended) The method of claim 11, wherein generating the correction includes:

calculating  $Q = \sim(A \oplus B)$  wherein the “ $\sim$ ” represents a bit-wise complement;

masking Q with the number one;

calculating  $G = Q \gg (N-S)$ ;

calculating  $H = Q \gg (N-R)$ ; and

calculating the correction as  $G + H$ .

13. (Original) The method of claim 12, wherein generating the filtered sample includes calculating the filtered sample as the approximate filtered sample added with the correction.

14-15. (Cancelled)

16. (Previously amended) A method in a signal processor for filtering samples in a digital signal, the method comprising:

generating an approximate filtered sample as a function of two samples of the digital signal wherein the two samples are a first fixed-point sample, A, and a second fixed-point sample, B;

generating a correction as  $(A \oplus B)$  OR  $(A \oplus (A+B \gg 1))$  wherein the “ $\gg$ ” represents a right-shift;

masking the correction with the number one; and

generating a filtered sample by modifying the approximate filtered sample with the correction.

17. (Previously amended) A method in a signal processor for filtering samples in a digital signal, the method comprising:

generating an approximate filtered sample as a function of two samples of the digital signal wherein the two samples are a first fixed-point sample, A, and a second fixed-point sample, B;

generating a correction as  $(A \oplus (A+B \gg 1))$ ; wherein the “ $\gg$ ” represents a right-shift;

bit-wise ANDing the correction with the number one; and

generating a filtered sample by modifying the approximate filtered sample with the correction.

18-46. (Cancelled)